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Stud. Hist. Phil. Sci. 36 (2005) 754–773
Studies in History and Philosophy of Science
www.elsevier.com/locate/shpsa

Political philosophy of science in logical empiricism: the left Vienna Circle

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1. Introduction

Philip Mirowski's analysis of the changing role of science under what he calls the 'globalized privatization regime' (p. 314) sounds a clear warning to all theorists of scientific knowledge. As a regime of science policy, this new globalized privatization regime sees a sharp reduction in public funding for scientific research and corresponding increases in industry-sponsored research with, in turn, increased outsourcing to contract research organizations. Perhaps most importantly, the new regime involves ever more stringent restrictions on research on the basis of expanded intellectual property right.[1] What changes, as a result, is not only what research gets done, but also the nature of the scientific enterprise itself.[2] Mirowski urges philosophers to confront this development: philosophy of science as we know it stands on the brink of becoming utterly irrelevant to both science and society.

My preferred rendition of the charge (and of part of the response) is this. Simply having a social component in one's epistemology is not enough to meet the challenge at hand. A

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[1] Looming large here is the Agreement on Trade Related Intellectual Property Rights (TRIPS), of which the World Trade Organization, founded in 1994, requires all members to be signatories. Its inception and consequences have become the subject of a growing literature ranging from exculpation to accusation; see, for example, Ryan (1998) for the former, May (2000) and Sell (2003) for attempts to find some middle ground and Drahos with Braithwaite (2002) for the latter. Blakeney (1996) provides the full text of TRIPS with legal elucidations, Bellmann, Dutfield, & Melendez-Ortiz (2003) provides excerpts from this and other relevant international agreements and discussions of responses to TRIPS from the developing world.

[2] What it means for 'the owners of prior intellectual property claiming downstream ownership rights' and for commercial research to be outsourced to contract research organizations is discussed in Mirowski (2001) and Mirowski and van Horn (2005), respectively. Strong concerns about the violation of Mertonian norms in consequence of the commercialisation of scientific research have been expressed also by Brown (2001), pp. 208–212, (forthcoming), and Carrier (forthcoming). For an overview of the economics of science literature, see Hands (2001), Ch. 8 and Mirowski & Sent (2002).

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doi:10.1016/j.shpsa.2005.08.014

merely social epistemology may be but the latest form of a more or less orthodox narrative legitimating current organisations of cognitive labour and power to (mis)distribute information. Philosophy of science must become politically critical if it wants to matter. It too must ask in whose interests a wide acceptance of certain philosophical doctrines would be. Doing so would not reduce philosophy of science to interest sociology, but it would use such input alongside other first-order data for its meta-theoretical reflections. Nor would this necessarily 'ethicise' philosophy of science, for its normative standards can remain grounded in objective considerations of epistemic instrumentality. But such a politically critical philosophy of science may still insist on providing conditional policy advice: reducing scientific knowledge to corporate assets in the global marketplace just is not helpful—from an epistemic standpoint, to start with.

In this comment I must leave current practitioners of social epistemology to the debate of their successes and failings that Mirowski's argument demands. My point is to provide some complementary history. Given the centrality of Reichenbach's logical empiricism to the Cold War science regime, some readers may be tempted to take Mirowski's findings to corroborate critical theory's longstanding charge of political conformism against logical empiricism. My co-symposiast Alan Richardson argues that the jury is still out on Reichenbach. But it is also very important to recognise that there once existed another form of logical empiricism that was critical and politically engaged in just the way that, it still seems, Reichenbach's was not. It is unfortunate that this 'other' logical empiricism was obliterated for so long.[3] Here I resurrect it to see how relevant it may be to our present concerns.

2. The left Vienna Circle

First we must note the context in which the Vienna Circle operated: so-called Red Vienna.[4] All of the members of the Vienna Circle supported its emblematic project of *Volksbildung* (literally 'people's education') in the service of something like the democratization of society. They understood adult education as a form of cognitive empowerment that would enable the population to participate more discriminatingly and thus more fully in culture and politics.[5] Some of the members of the Vienna Circle in addition were more or less actively involved in socialist politics: these I call collectively the 'left Vienna Circle'. They are Otto Neurath, Rudolf Carnap, Hans Hahn and Phillip Frank—the former three

[3] But no longer! Some fifteen years ago it was only possible to speak in general terms about the fate of Neurath's philosophy: 'Add to this "internal" theoretical dynamic [the increasing isolation of his antiformalist position within logical empiricism] the "external" facts about the American political culture in the 1940s and '50s, and it is hardly surprising that Neurath, who never cared to dissociate his philosophy from his politics, all but disappeared from view' (Uebel, 1991, p. 11). Now there is a growing and important literature with detailed studies of the upheavals that various aspects of the Cold War era visited upon philosophy in the USA. On the 'marginalization' of, amongst other schools, Continental philosophy, see McCumber (2001); on the 'professionalization' of analytic philosophy of science, see Howard (2003, forthcoming); on the effects of McCarthyism on the Unity of Science Movement, see Reisch (2005, forthcoming); and now Mirowski on the legitimating function of orthodox logical empiricism. On the unfortunate confrontation between Horkheimer's critical theory and Neurath's heterodox logical empiricism back in old Europe, meanwhile, see Dahms (1992) and O'Neill & Uebel (2004).

[4] For survey studies see Rabinbach (1983) and Gruber (1991).

[5] On the educational and cultural Enlightenment ambitions of the Vienna Circle, see Uebel (2004b).

being the main authors of the Circle's 1929 manifesto, 'The scientific world conception. The Vienna Circle', and the latter the local organiser of the conference within a conference at which it was first publicly presented. Note that my classification and terminology has historical form. The name 'the left wing' (of the Vienna Circle) already was employed by Neurath from whom Carnap adopted it and brought to wider use in his autobiography (juxtaposing to it 'the more conservative right wing').[6]

Importantly, the term 'left (wing of the) Vienna Circle' was (and is) prominently, but not primarily, suggested by their shared political beliefs, but it was (and is) also meant to indicate their shared philosophical doctrines and approaches to philosophical problems as evidenced in the discussions of the Circle. Against the background of agreement on basic tenets of neopositivism, it was members of the left wing who in the Circle argued for the rejection of Wittgenstein's strictures on meaningfulness and against metalinguistic discourse and it was also these members of the left wing who came to reject all foundationalist ploys in philosophy. (Needless to say, enough topics of disagreement remained amongst them.) Of course, other participants (like Karl Menger) shared at least some of these philosophical proclivities, but what set them apart was their objection to the manifesto's stress on the presumed fact that 'the vitality which shows itself in the efforts for a rational transformation of the social and economic order, permeates the movement for scientific world-conception', or when it stated about the work of the 'Circle around Schlick':

> The attitudes toward questions of life also showed a noteworthy agreement, although these questions were not in the foreground of themes discussed within the Circle. For these attitudes are more closely related [*engere Verwandtschaft*] to the scientific world-conception than it might at first glance appear from a purely theoretical point of view. For instance, endeavours toward a new organisation of economic and social relations, toward the unification of mankind, toward the reform of school and education, all show an inner link [*innerer Zusammenhang*] with the scientific world-conception; it appears that these endeavours are welcomed and regarded with sympathy by the members of the Circle, some of whom indeed actively further them. (Carnap, Hahn, & Neurath, 1973 [1929], pp. 304–305)

Given that some members of the Vienna Circle were not delighted by such phrases, the affinity which the manifesto claims existed between the philosophy of the Vienna Circle and the socialist values of some of its members proved controversial even then. Concerning that affinity we must ask: what 'inner link' might connect fact-based scientific philosophy to value-laden political partisanship?

What must be shown first of all is that this link involves neither a version of the naturalistic fallacy nor a secret dependence on incompatible ethical presuppositions. One thing that prompted the left Vienna Circle's conviction that a special affinity obtained between their philosophy and their political views was the view that, as Neurath put it, 'doctrines free from metaphysics are also spreading and are gaining more and more ground as a new 'superstructure' of the changing economic 'substructure' of our time' (1983e [1932], p. 90). Characteristic for the left Vienna Circle, this suggests, was not a certain mixture of politics and philosophy, but a conception, in a larger framework, of philosophy's relation to ongoing changes in the economic basis of society. For Neurath, physicalism was an integral

[6] Carnap (1963), p. 57. For the genealogical argument, see Uebel (2004a).

part of the superstructure of the coming social order. (The rather counterfactual nature of this supposition was admitted by Neurath when he wrote to Carnap in early 1933: 'when will the substructure finally join our superstructure?')[7] But whatever their attitude towards the thesis of historical materialism, all the authors of the manifesto viewed philosophy to be of critical relevance to what they believed was the ongoing socio-historical change towards socialism.

More was involved than contingent political sympathies. The keyword was '*bewusste Lebensgestaltung*', the conscious structuring of life. Consider the Preface to Carnap's *Aufbau*:

> We feel that there is an inner kinship [*innere Verwandtschaft*] between the attitude on which our philosophical work is founded and the intellectual attitude which currently manifests itself in entirely different walks of life; we feel this orientation in artistic movements, especially in architecture, and in movements which strive for meaningful forms of personal and collective life, of education, and of external organisations in general. We feel all around us the same basic orientation, the same style of thinking and doing. It is an orientation which demands clarity everywhere, but which realizes that the fabric of life can never quite be comprehended. It makes us pay careful attention to detail and at the same time recognizes the great lines which run through the whole. It is an orientation which acknowledges the bonds which tie people together, but at the same time strives for free development of the individual. Our work is carried by the faith that this attitude will win the future. (1967 [1928], p. xviii; translation altered)

Frank, Hahn and Neurath shared Carnap's conviction.[8] Importantly, their like-mindedness concerned their conception of the nature of the philosophical project in which they were engaged: the provision of conceptual tools for the workshop of 'life'.

> The Vienna Circle believes that in collaborating with the Ernst Mach Society it fulfills a demand of the day: we have to fashion intellectual tools for everyday life, for the daily life of the scholar but also for the daily life of all those who in some way join in working at the conscious re-shaping of life. (Carnap, Hahn, & Neurath, 1973 [1929], p. 305)

What made for the kinship of the scientific world-conception and the workers' movement, for the 'inner link' between the scientific world-conception and 'efforts to restructure economic and social relations', was the commitment to the 'conscious re-shaping of life' according to 'rational principles'. As far as scientific concept formation and conceptual and methodological reforms are concerned—the Circle's own proper domain of professional activity—'rational' can only mean 'intersubjectively transparent in its rationale'. Nothing substantive was prescribed by the scientific world-conception in and of itself but only the procedural demand that proposed conceptual reforms, say, had to be specified

[7] Letter of 13 March 1993 (RC 029-11-20, Archives of Scientific Philosophy, Hilman Library, University of Pittsburgh). Quoted by permission. Rights reserved.

[8] To see this, compare the passages from the manifesto quoted so far with the still more explicitly party-political last two paragraphs of Neurath's *Lebensgestaltung und Klassenkampf* (1973c [1928]), p. 298; with relevant but again more oblique passages of the Preface to Frank's *Kausalgesetz* (1998 [1932]), pp. 11–15; and finally with the concluding paragraph of Hahn's paper at the 1929 Prague conference (1980 [1930]), p. 30.

clearly in terms of the syntactic and semantic properties of the logico-linguistic frameworks within which they have been conceived. However abstract, such work has a practical dimension: logico-linguistic proposals allow reconceptualisations of recalcitrant cognitive phenomena—in science and in 'life'.

Even before we know more detail then, it seems we can conclude the following. First, that the Vienna Circle's non-cognitivism allowed for but did not prescribe the left wing's political engagement. (While both the traditionalist and the left wing of the Vienna Circle identified with the ideals of the Enlightenment and, beyond that, were happy to promote the educational agenda of Red Vienna, only the left wing also identified with the political ideology of the Austrian Socialist Party.) Second, that the left wing's variant of the Vienna Circle's attitude to theoretical philosophy gave content to the claimed affinity of their philosophy with their preferred politics. Philosophy had no job double-guessing science but only that of offering methodological reflections and developing logico-linguistic frameworks and procedural or institutional frameworks for possible use. Consistent with their conception of philosophy, the assistance that the scientific world-conception could give to practical ends could be but methodological: it could provide tools for clear thinking. The 'inner link' was not an agreement on political theses, but a complementarity of activities and projects. What made the group Hahn–Frank–Neurath–Carnap the 'left' wing of the Circle, then, was not some subservience of their theories to a party-political goal, but the independently arrived at but nonetheless celebrated convergence between the constructivist impulse of their philosophy of science and the Enlightenment aspirations of the Austrian and German democratic left of their day.

Importantly, it was part of their 'scientific world conception' that it specified a political role for philosophy of science. (The scientific world conception was the philosophy appropriate to democratic socialism.)[9] Yet that was not all. At least for Neurath and later Frank, the scientific world conception also accepted that political considerations might play a role in science itself: given the well known phenomenon of the underdetermination of theory by the observational data—indeed, given the non-foundational nature of the data themselves—political desiderata may enter into theory and data choice via background assumptions and pragmatic considerations.[10] Especially in the social sciences, Neurath noted, 'time- and class-bound ideology take the place of logical univocality'.[11] By the recognition of this effect of underdetermination—providing both leaway for engaged scientists and affording room for ideological exploitation by the authorities—Neurath and Frank stressed that science and philosophy of science did not possess what Neurath elsewhere described as 'extraterritoriality' (1973b [1931], p. 406), that science and

[9] The seemingly anachronistic usage is intentional. The party-political allegiance of the members of the left Vienna Circle's allegiance was to the Austro-Marxist ÖSDAP, not the Marxist–Leninist KPÖ, which unlike the former strove to erect a dictatorship of the proletariat. Such distinctions are elided and confused by Notturno (1999) who paints 'Carnap and his Co-Workers' as adherents of 'scientific socialism' and uncritically accepts the later Popper's retrospective views of Red Vienna. For a critical assessment of Popper's critique of Austrian socialism see Hacohen (2000), pp. 326–335.

[10] That this is a point of agreement between Neurath's and Frank's philosophy of science and Longino's (1990, 2002) is stressed by Don Howard (2003, forthcoming b). Uebel (2000) explores some parallels and discontinuities of Neurath's and Frank's views with some recent sociologies of science.

[11] Neurath (1981b [1928]), p. 296. For further examples of their version of the underdetermination argument, see Neurath (1973c [1928]), p. 293; (1981a [1930]), p. 352; Frank (1954), p. 19; (1957), p. 359.

its metatheory also had to be viewed in the socio-political context in which it was practised.[12]

In just this regard, of course, there seems to have obtained a difference between the members of the left Vienna Circle. According to Carnap's report, Neurath was prepared to concede that philosophy should be responsive to the political demands of the day, whereas Carnap was opposed and stressed 'the purity of philosophical methods' (1963a, p. 23). This is often taken to signal Carnap's dissent from Neurath's politicisation of philosophy, but we must carefully establish how far Carnap's dissent really reached. The two examples Carnap gave are Neurath's opposition to Hahn's active interest in parapsychology and to Carnap's own neutrality between adopting a physicalistic or a phenomenalistic language for unified science. Neurath insisted, as Carnap put it, on the probity of 'arguments of a more pragmatic-political rather than of a theoretical nature for the desirability or undesirability of certain logical or empirical investigations' (ibid.). Importantly, it was not the truth of philosophical theses (materialism vs. idealism) that Neurath argued for on pragmatic-political grounds, but the relative priority and relevance, and so urgency, of certain logical and empirical research programmes (physicalist unified science vs. methodological solipsism). Now in at least one respect there was nothing scandalous whatsoever about Neurath's point of view. That a scientist's values may influence her problem selection is something even Max Weber conceded (Weber, 1949a [1904], 1949b [1916]). However, since given underdetermination 'pragmatical-political' considerations may also extend to individual theses, it may appear as if the very objectivity of science was challenged: propositions are embraced as true because they flatter our political agenda. Here Carnap's alarm may appear understandable. Yet long before Popper, Neurath regarded even confirmed scientific propositions only as working hypotheses and not *bona fide* truths (and thus closer again to research programmes). Moreover, Carnap too accepted the Duhemian underdetermination, even for protocol statements themselves (1937 [1934], §82). So how could he bar the recognition that political values may influence our hypothesis acceptance?

Let us attend to Carnap's own locution. The 'philosophical methods' whose purity he defended were those of the 'logic of science' (for him the direct successor to the philosophy of old). For Carnap, it was the logic of science that brooked no interference from non-logical concerns. This is crucial, for as long as the logic of science deals only in possible logico-linguistic frameworks there can be little argument with this. Neurath's philosophy of science appeared unduly politicised because he objected to Carnap's methodological solipsism because, as he once put it, it 'might induce younger people ... to metaphysical digressions' (1983d [1932], p. 93): obviously a politically undesirable state of affairs. Of course, Neurath also had other grounds of opposing methodological solipsism and on that basis could argue that work on a phenomenalist genealogy of scientific concepts was pointless because its psychological assumptions were plainly counterfactual.[13] Still, Neurath did not mind buttressing his naturalistic proclivities with considerations of political expediency—and this is where Carnap protested. Note that as long as Carnap objected only here, his disagreement with Neurath would remain clearly localised. That no other relevant

[12] It hardly needs stressing that the phenomenon of value intrusion due to underdetermination is not unproblematical but, as Don Howard put it, 'the case of objectivity is best served by openness and honesty about that role' which social and political values play in theory choice (forthcoming).

[13] This is argued in Uebel (1992), Ch. 10.

objections of Carnap's are recorded suggests that while there did obtain in the left Vienna Circle disagreements about the extent to which pragmatic-political considerations may influence philosophy of science, none obtained concerning the view that in the larger scale of things even philosophy of science possesses a certain political valency and that, for the reasons indicated, pragmatic-political considerations might play a role in science itself. Carnap and Neurath were far less at odds than is commonly supposed.

I conclude that the left Circle's philosophy of science was political beyond the aspirational kinship with the socialist agenda of their day in recognising both its own superstructural role and in recognising how political considerations can have a bearing on the conduct of science via underdetermination. That some disagreement remained only shows that even the left Vienna Circle was not homogeneous—not that it did not exist: we may distinguish a more partisan (Neurath, Frank) from a more neutralist faction (Hahn, Carnap) in that the former was prepared to put the underdetermination phenomenon to work. That said, note that, importantly, the consensus of the left Circle's philosophy of science was political only in a descriptive sense: it recognised the influence of extratheoretical values within science and allowed for their pursuit by enaged scientists. Unlike some contemporary versions of political philosophy of science, the left Circle's did not itself adopt the strongly normative stance of exhorting philosophers of science to be oriented towards ethical-political goals.[14]

3. Anti-metaphysics, non-cognitivism and political philosophy of science

This construal of the left Vienna Circle's political philosophy of science disposes of the suspicion that the scientific world-conception claimed for political-practical convictions the dignity of empirical fact or held its conception of theoretical reason on the basis of moral-political principles. There remains the concern whether 'the programme of the scientific world-conception, as it was advocated by the left wing of the Circle is inconsistent. Even though it is conceived as a comprehensive conception of rationality, its principles of theoretical reason undermine the possibility of practical reason' (Hegselmann, 1979, p. 63; my translation). To answer this claim it must be shown that lurking as yet unaddressed between the lines written by the members of the left wing is a conception of what it is to adopt an attitude, take a stance and engage for or against a particular evaluation or goal, a conception in short of *praxis* that is fully integrated with their theoretical philosophy. What encourages the hope that such a conception indeed be attributable to the left Vienna Circle is the realisation that increased sophistication in anti-metaphysics allows increased sophistication in non-cognitivism—and that both improvements follow from getting the right measure of the left Vienna Circle's metaphilosophy.

Let me put aside one common charge right away, namely, that the transparency of arguments and proposals was bought for the price of an untenably reductionist agenda. Now it must be admitted that a sympathetic reading of the manifesto is required to discount occasional foundationalist-sounding appeals to 'reduction to the simplest statements about the empirically given' (Carnap, Hahn, & Neurath, 1973 [1929], pp. 306–307), but it can be

[14] For an example of the latter and the opposition it arouses, see Kourany (2003) and Giere (2003). It is unclear whether Mirowski demands an explicitly normative philosophy of science. My point here is to show that acceptance of the standard Weberian strictures need not bar a politically critical philosophy of science.

added that such sympathy is justified. It is one of the results of recent Vienna Circle scholarship that is legitimate to discount such remarks as ultimately inessential accoutrements. It was, as noted, the members of the left Vienna Circle who pioneered epistemological anti-foundationalism. Even so disinfected, however, the Circle's vision seems a peculiarly one-sided, all too austere affair of scientific reason. To see that in the left Vienna Circle scientific reason was not absolutised but regarded as placed within the horizon of humanity's practical projects of material survival and social progress we must consider the lasting point of the left Vienna Circle's anti-metaphysics and the voluntarist import of their non-cognitivism.

The first point to make is that we must understand the radicalism of the left Vienna Circle correctly.[15] This radicalism must be contextualised—they opposed as philosophy in particular the neo-idealistic philosophical tendencies of their day—but it must not thereby be rendered all too harmless and uncontroversial. The left Vienna Circle put forward a deflationist conception of philosophy that still today is unusual and challenging. Their philosophy abjured any attempts to double-guess science in attempting to glimpse behind some veil of appearances, but understood itself as scientific metatheory. Scientific metatheory explored possibilities, both possibilities of representation and scientific practice. They explored the consequences of the various possible choices of logic and language (in what Carnap called the 'logic of science') and of the procedures of accounting for evidence and theory building (what Neurath called the behaviouristics of scholars' and could have called the 'pragmatics of science'). [16] In short, what facts there are is for science to discover—what philosophy qua scientific metatheory does, besides inquiring into justificatory chains of reasoning and practices, is to explore the representational and procedural leeway that we possess in dealing with such facts. Such explorations issued not statements of absolute prescriptions but 'proposals' that are relative to logico-linguistic frameworks or practical contexts. (Note that already the manifesto allowed for this approach when it delineated what remained of philosophy: so-called foundational investigations became explorations of conceptual possibilities (Carnap, Hahn, & Neurath, 1973 [1929], p. 316).) Marry this attitude to their antifoundationalism and what results is not only that metatheory was included in science as a whole, that it was part of 'unified science'—which in Neurath's hands assumed a non-reductive and non-hierarchic form as regards the relation of the first-order sciences to each other—but also that metatheory was understood in broadly constructivist terms.

But how, readers may wonder, is this to be squared with the verificationist meaning theory on which the Circle's virulent opposition to metaphysics is said to depend and which, as is well known, never found an adequate formulation? Again, given the left wing's across-the-board anti-foundationalism, in their hands the empiricist meaning-criterion no longer served in a foundational office but only in an explicatory, clarificatory one. Their anti-metaphysics could no longer consist in the enforcement of a foundationalist meaning

[15] For instance, the notion that 'the Viennese Circle does not practice philosophy' (Carnap, 1934 [1932], p. 21) or that they practised 'anti-philosophy' (Neurath, 1983c [1931], p. 48]).

[16] See Carnap (1937 [1934]), §72, where Carnap distinguishes the 'logic of science (*Wissenschaftslogik*)' from the general 'theory of science (*Wissenschaftslehre*)', and Neurath (1983a [1936]), p. 149, and (1983b [1936]), p. 169, where Neurath differentiates and endorses the pursuit of both 'the logical syntax of language' and 'the behaviouristics of scholars'. That Carnap's and Neurath's later disagreements must not overshadow their principled agreement on the compatibility of their specialisations is argued in Uebel (2001).

theory. The work of Carnap in particular makes clear that the metaphysics which the left Vienna Circle attacked, besides the supra-scientific essentialism of old (and tendencies to formulate patently uncontrollable assertions), was the correspondence conception of truth and of knowledge: realism (as well as their opposites of coherence truth and idealism).[17] For them, scientific knowledge was not a perspectiveless picturing of the world as it really was in and of itself and truth was not correspondence. We can conclude therefore the left Vienna Circle did not absolutise scientific reason either in terms of structure (antifoundationalist), status (fallibilist) or content (anticorrespondentist).

What then of the left Vienna Circle's conception of practical reason? What about the ethical non-cognitivism confessed by the Vienna Circle, does it not render anything like rationality in evaluative matters impossible? That, of course, is an interpretation much encouraged by A. J. Ayer's emotivist analysis in *Language, Truth and Logic* (Ayer, 1937)—a book all too often still held to be representative of Viennese logical positivism—but it is also encouraged by Carnap's brief remarks on ethics from the 1930s.[18] Already Charles Stevenson, having invested much effort into rendering non-cognitivism respectable, chided Carnap for having been 'particularly unguarded' in respect of his apparent wholesale dismissal of ethical discourse as meaningless metaphysics (1944, p. 266). But we must note two things. First, that it was statements of an unconditionally normative philosophical ethics that Carnap and the Vienna Circle rejected: this leaves open that other forms of ethical discourse are treated differently. Secondly, that it is false to claim that later phrasings of the standpoint in terms of 'cognitive meaninglessness' are partial retractions of the early radicalism. All along 'meaningful' or 'meaningless' were understood in the sense of 'cognitively meaningful', which was to be understood as a property of (in the case of synthetic statements; empirically) truth-evaluatable statements. Thus we read:

> metaphysics does indeed have a content; only it is not a theoretical content. The (pseudo) statements of metaphysics do not serve for the description of states of affairs, either existing ones (in that case they would be true statements) nor non-existing ones (in that case they would be at least false statements). They serve for the expression of the general attitude of a person towards life. (Carnap, 1959 [1932], p. 78)

The question we must ask is whether 'the expression of the general attitude of a person towards life' (*Lebensgefühl*) denotes the simple expression of emotion?

That this is not so can be shown by reference to a relatively little known (and so far untranslated) essay by Carnap, 'Theoretische Fragen und praktische Entscheidungen'. Carnap there drew the important distinction between theoretical questions which require

[17] Given this understanding of their anti-metaphysics, it becomes easier to see why the members of the left Vienna Circle remained untroubled by the repeated failures of attempts to delineate a logically precise necessary and sufficient criterion of empirical meaning. This interpretation does not require the left wing's anti-correspondentism to have been properly articulated from the start, as long as correspondentism was always in the firing line, as it was. See Uebel (2004a).

[18] See Carnap (1959 [1932]), pp. 61, 76–77; (1934 [1932]), pp. 25–27; (1935), pp. 23–25. For broadly consonant remarks by Neurath see his (1983e [1932]), pp. 78–80.

theoretical answers and practical decisions which require the adoption of positive or negative attitudes towards certain states of affairs.[19] Rather than being simply meaningless despite pretending to be otherwise, the propositions of ethics have a totally different point. They do not describe facts but express and mark the adoption of a certain attitude—and that can be of great importance and consequence.

> From what was said follow certain consequences for the type of struggle that we wage against superstition, theology, metaphysics, traditional morality, capitalistic exploitation of workers, etc. As regards *superstition*, theoretical questions are at issue. It is possible to disprove by scientific means the assumption that prayers or charms can prevent hail storms or railway accidents. However, whether somebody is in favour of or against cremations, in favour of or against democracy, in favour of or against *socialism*, that is an issue for adopting a practical attitude, not of theoretical proof. By theoretical means one can only determine here that this or that institution brings with it these or those types of hygienic, economic or cultural consequences. This is a very important preparation for our adoption of an attitude, but it does not render it otiose. We must decide whether we are in favour of or against the consequences which theoretical investigation has established will follow (e.g., the elimination of economic crises and unemployment); it is on this that, guided by theoretical insight, our action depends. *Scientific considerations do not determine the goal, but only ever the pathway to the goal adopted.* (Carnap, 1975 [1934], pp. 174–175; my translation)

There are a number of things that have to be said about this revealing passage. First, that Carnap's position on the issue of science and values here (it is one he shared with Neurath) is far from revolutionary but partly reflects the classical one articulated by Max Weber in his seminal papers of 1904 and 1916. Unconditional value statements and/or imperatives have no place in science since it is impossible to establish their objective validity (basic valuations being subjective and of great variety). Only conditional value statements and/or imperatives are scientifically respectable, for they specify instrumental means–end relations and these are factual and objective. (Of course, Carnap and Neurath also go beyond Weber in denying philosophy access and insight into some distinctively normative realm.) Second, the category 'adopting a practical attitude' denoted not merely decisions on personal–emotional matters but also political issues. Generally, one had to adopt a practical attitude towards everything that should or should not be the case, all normative matters. In as much as action was intentional and goal-directed, all action required the adoption of an attitude. Third, while such an adoption of a practical attitude was not to be considered a merely arbitrary matter (non-apodictic reasons could be given), neither was it the case that factual knowledge could determine what we should do. Carnap stressed that factual information about the consequences of contemplated courses of action can 'guide' our decision but also that nothing could render our decision 'otiose': 'Exclusion from the domain of *theoretical judgements* does not relieve us of the ability, even the duty to adopt a *practical attitude*. There is a *fundamental difference* between both, however, which we must come to understand' (ibid., p. 173; my translation). Clearly Carnap recognised what could be called the 'other' of reason: will. In life, adopting a practical attitude complemented

[19] This point of view was hinted at in *Aufbau*—'The 'riddles of life' are not questions, but are practical situations'—where it was traced to Wittgenstein's *Tractatus*; see Carnap (1967 [1928]), §183.

determining what is the case. For Carnap—and the left Vienna Circle generally[20]—a quasi-existentialist understanding of matters conative ran in parallel with a rationalist understanding of matters cognitive.[21]

That we find in Carnap such a fairly rich conception of what it is to adopt a practical attitude is no accident. It turns out that the 'emotion' Carnap spoke of typically is the 'feeling for' or 'attitude towards life' (*Lebensgefühl*) and that is a key term for a very complex psychological disposition for the analysis of which Carnap once referred his readers to none other than 'Dilthey and his students' (1959 [1932], p. 79). As it happens, one of the latter, Hermann Nohl, was Carnap's own 'gratefully remembered teacher at Jena' who acquainted him with Dilthey's theory of world views (Naess, 1968, p. 43; cf. Gabriel, 2003). One long-term lesson that Carnap drew was to transpose Dilthey's positive estimation of metaphysical systems as expressions of personal genius into his own more negative one of metaphysics as misplaced attempts at conceptual poetry. Appreciating this background only confirms that Carnap's emotivism was something of a proto-existentialism. Moreover, to say that ethical discourse is again meaningful, albeit not cognitively so, did not remain an empty claim for Carnap who late in his career provided an axiological structure for it in terms of descriptions and so-called optatives (Carnap, 1963b,pp. 999–1012) and so was able to exhibit what Reichenbach had called 'entailed decisions' (Reichenbach, 1938, p. 13), namely, consequent evaluations. (Pure optatives expressed the unconditional value statements which anchored normative discourses.)

Needless to say, not all members of the left Circle looked at ethics from this predominantly individualistic point of view. Neurath, for one, also considered the matter in broadly sociological terms (e.g., 1983e [1932], pp. 78–80). Nonetheless, we can conclude that the left Vienna Circle's non-cognitivism constituted as much an answer to the claims of *Lebensphilosophie* that pure feeling and inscrutable genius must decide normative matters as to the claims of deontology and intuitionist ethics that reason alone or supernatural fact determine them. The left Vienna Circle did not deny the importance and dignity of substantive rationality, but its members did deny philosophy or science the capacity to determine it objectively. Substantive rationality is subjective: there are no values, but there are plenty of valuations that practical reason must consider and come to opinions about. About moral and political matters, adherents of the scientific world conception can only argue as engaged individuals. By stressing the need for a voluntarist element, the left Vienna Circle's conception of practical reason complemented their vision of non-absolutised scientific reason. Whatever else may be said about it, the left Vienna Circle's scientific world conception did not incur the aporiae that critics tended to charge it with.

4. Logical empiricism's orthodoxy and heterodoxy compared

I turn to the question of what distinguishes this left Vienna Circle version of logical empiricism from its Cold War version as codified by the writings of Hans Reichenbach.

[20] See the brief but consonant remarks by Neurath on the will in his (1983f [1913]), passim, and (1920), p. 44, and by Hahn on 'the ethical force of the will to know' (Mach's phrase) in his (1908), p. 61.

[21] Importantly, this understanding was not only abstractly universal but also concretely reflexive. While their adoption of a political attitude is merely hinted at as comprehended by the reasoning in the passage just quoted, Carnap addressed the left Vienna Circle's opposition to metaphysics as an explicit example of such engaged attitude adoption; see Carnap (1975 [1934]), p. 176.

The focus has been nicely delimited for us by Mirowski's list of the twelve deadly sins of operational research, the eighth of which is 'posturing concerning agnosticism about values' (p. 311). What is meant is the syndrome of the so-called value-neutrality or value-freedom of science (and the closely associated doctrine of ethical non-cognitivism). I will argue that it all depends on how the doctrine of value-freedom is construed. Reichenbach's take on these doctrines was to legislate by their means the utter withdrawal of science and philosophy of science from the domain of social criticism, both constraining the social sciences in their pursuit and at the same time rejecting interference from whatever the popular agenda may be. Clearly, the political philosophy of science of the left Vienna Circle fell foul of these prescriptions. In asking 'what allowed it to do so?' there are several issues to consider. First, that there obtained a rarely noted but surprisingly deep difference between Reichenbach's and the left Vienna Circle's conceptions of philosophy (best illustrated by Carnap); second, that on this different basis, the left Vienna Circle was able to respond differently from Reichenbach to two difficulties for politically engaged science and philosophy of science.

Now the very first point (though not the most far-reaching) is to stress the difference in the context of the two logical empiricisms. Whereas the left Vienna Circle version was developed in the context of the socialist Enlightenment ambitions of post-World War I Red Vienna, Reichenbach's version swept the board in a post-World War II USA cowered by anticommunist witch hunts.[22] Since, as we established, the left Vienna Circle's philosophy of science did not issue political prescriptions but rather celebrated the compatibility of their constructivist approach to philosophy and the political goal of the rational reshaping of forms of socio-economic organization and pointed out where extra-theoretic consideration may enter scientific reasoning, this difference in context matters but does not yet explain the difference in content between these logical empiricisms.

The second point is more decisive. Given that what is political about the left Vienna Circle's philosophy of science is that it legitimates as pertinent to the theory of science not only methodological and evidential reasoning but also psychological, sociological and historical analyses (where matters underdetermined by evidence are broached), the question of what disciplinary domains may be counted as of concern to the successor of traditional philosophy is of crucial importance. In this regard, a significant difference emerges between the left Vienna Circle and Reichenbach. As noted, for the left Vienna Circle scientific metatheory comprised both the formal logic of science (both deductive and inductive logic applied to evidential relations) and the more practice-oriented pragmatics of science (history, sociology and psychology of science).[23] By contrast, Reichenbach admitted into the 'analysis of science'—which he declared equivalent to the logic of science—only logic, probability theory and 'all the basic problems of traditional epistemology' (1938, p. 8). No place

[22] See the works by McCumber, Howard and Reisch cited in n. 3.

[23] To be sure, Carnap declared the logic of science to be the sole successor to the philosophy of old, but he evidently did so in order to preserve some continuity via the former's non-empirical character. More importantly, Carnap clearly recognised the legitimacy of general theory of science with its 'historical, sociological and psychological inquiries' (1937 [1934], §72). These latter are, we may add, the obvious successors to the confused attempts of metaphysical philosophy to deal not with formal but first-order object questions. Replacing pseudo-issues with real ones may lead us either to the logic or the pragmatics of science.

remained for any of the empirical sciences of science whose importance was stressed by Neurath.

On the face of it, Reichenbach and Carnap at least seem in agreement, but note that Carnap repudiated traditional epistemology. His was a radical reconfiguration of the field unparalleled by anything Reichenbach attempted. According to Carnap—and the rest of the left Vienna Circle followed him in this—the point of the logic of science was precisely that it did not inherit most of the, as he put it, pseudo-problems of traditional epistemology. To allow, in its place, for a comprehensive reflective consideration of science more was needed than the logic of science, namely, the empirical disciplines of the wider theory of science. By contrast, Reichenbach's traditionalist 'analysis of science' luxuriated in the exclusive claim to speak for the rationality of science. So the very conception of philosophy of science differs significantly between the two versions of logical empiricism under consideration. Where Carnap's conception of philosophy in the narrow sense remains open in that his logic of science requires complementation from empirical inquiries such that their combination amounts to Neurath's broad conception of scientific metatheory, Reichenbach's conception of philosophy of science as analysis of science insists on remaining self-sufficiently narrow.

What brought on this difference? An important point of reference here is the much debated distinction of the contexts of discovery and justification. Philosophy of science is concerned with the latter, according to Reichenbach, and that bars political considerations. But is that due to the context distinction alone? If that were so, the left Vienna Circle would appear to be in trouble for its members shared in drawing the context distinction. For instance, Carnap's notion of 'rational reconstructions' does much the same work. The answer is that the difference rather lies in Reichenbach's radical internalism which found expression also independently of the context distinction.[24]

In delimiting the tasks of epistemology Reichenbach started by recognising 'knowledge as a given sociological fact' (1938, p. 3) but immediately separated out the true philosophical concern by means of two distinctions. The first is a distinction between matters 'internal' to the domain of knowledge and matters 'external' to it. 'Internal relations are such as belong to the content of knowledge, whereas external relations combine knowledge with utterances of another kind which do not concern the content of knowledge' (ibid., p. 4). Philosophy of science, Reichenbach ruled, was only concerned with the former: 'epistemology concerns the internal structure of knowledge and not the external features which appear to an observer who takes no notice of its content' (ibid.). This excluded sociology. Reichenbach then added 'a second distinction which concerns psychology' (ibid.), the context distinction. Thus when he introduced it, Reichenbach drafted the context distinction on to the antecedently drawn distinction between matters internal and external to the domain of knowledge. Note that for Reichenbach the sociological and psychological concerns abstract entirely from content; having separated the social from the rational in this way, the former could not possibly have a bearing on the latter.

This throws into relief the difference between Carnap's concept of rational reconstruction and Reichenbach's context distinction. Whereas the intent of the former may be seen to approach a distinction known since Chomsky as that between competence and performance, the latter is really just the application to psychology of a sharp internal–external

[24] For a different reading of Reichenbach on the context distinction see Richardson (2000).

distinction. The upshot is that the left Vienna Circle did not understand the distinction of the contexts of discovery and justification as Reichenbach understood them. In the left Vienna Circle's book, rational reconstructions or accounts of justification abstracted from the actual thought processes of the day, but they did not in principle abjure social input nor concern with institutional practices.[25] So, unless it is specified further, an acceptance of the context distinction remains neutral with regard to whether a political philosophy of science may be pursued: it all depends on how that distinction is understood.

Consider now a challenge to the consistency of the left Vienna Circle's position on the issue of 'engaged science'—a challenge that Reichenbach's apolitical version of logical empiricism may be seen to have responded to. Typically in the philosophy of (social) science since Weber, the encroachment of unconditional values into science has been condemned as spelling the end of scientific objectivity. The simple reason was that the validity of absolute values is beyond the reach of intersubjective validation. Does it not follow that scientific thinkers should abstain from any such engagement—on pain of losing objectivity? As we saw, the left Vienna Circle agreed that unconditional value judgements are out of bounds even for *engaged* scientists *qua* scientists. Wherein then did their conception of engaged science consist? Here it is useful to remember Weber's concept of value-relevance which allows that the scientists' values inevitably entered into the process of problem selection in the human sciences. What to work on, in other words, was value-conditioned—and there was nothing wrong with that. Engaged science therefore did not mean that science itself issued unconditional value statements. Weber's basic insight concerning the way in which values can legitimately enter extends not only to the choice of research programmes, but also, given the underdetermination of theory by data, to the choice of working hypotheses.

Yet there remains a way in which even this conception of engaged science comes into conflict with the idea of objectivity: it is when objectivity is understood along the lines of undistorted representation, the 'view from nowhere'.[26] Even though it respects the Weberian criterion of value-neutrality, engaged science violates the idea of objectivity as aperspectival depiction. Of course, just for this reason Weber himself denied objectivity to social science—but neither need we nor did the left Vienna Circle do so, who instead rejected Weber's neo-Kantian distinction between the nomothetic and the ideographic sciences. Like contemporary philosophers of science, the left Vienna Circle needed an alternative conception of objectivity which allowed all the sciences to share in it and at the same time allowed for engaged science to be practised. Now while a clear expression of this alternative conception is missing in the work of the left Vienna Circle, it is nevertheless apparent that its members were well on the way towards it. Note here how the notion of intersubjectivity also provided the framework within which it was possible for science to attain its autonomy from philosophy: it opened the possibility for replacing the 'metaphysical' idea of objectivity and grounding the rationality of science in the absence of foundations. The objectivity of science did not consist in the provision of distortionless reflections of reality, but in the possibility for intersubjective control of perspectival views and assertions. That the left Vienna Circle no longer subscribed to the idea of objectivity as the view

[25] Thus with Neurath we even find what are in effect rational reconstructions of scientific practice: think of his proposal for protocol statements in his (1932b).

[26] The phrase is Thomas Nagel's (1979) but the idea behind it has an exceedingly long pedigree in philosophy. Bernard Williams attributed it to Descartes under the name of the 'absolute conception' (Williams, 1976).

from nowhere is also suggested by the anti-correspondentist thrust of their anti-metaphysics, aided by their general epistemological antifoundationalism, and their metatheoretical constructivism: the empiricist meaning criterion—quite besides shedding formalist pretensions and switching to a paradigm- and situation-based applicability—was not foundational-representational but itself created to increase perspicuity.[27]

There is little reason then to doubt that the left Vienna Circle took decisive steps in the direction of what nowadays are called 'procedural' conceptions of objectivity. Thereby, of course, they clinched the case under consideration. With a procedural conception of objectivity, it is no longer the case that engaged science, with its acknowledgement of value influences in problem and research programme choice as well as in the choice of working hypotheses due to underdetermination, fatally undermines the possibility of objectivity. What is required now is that there be procedures to make theory choice accountable—and that, of course, is what both the logical efforts of Carnap in the logic of science and the pragmatic efforts of Neurath in the pragmatics of science were intended to achieve.

5. Discussion

Needless to say, the answer to the question of what a socially aware contemporary philosophy of science should look like (indeed, how a critical political philosophy of science should take issue with the threats to science by the new intellectual property regime) may at best receive some input from, but will hardly be determined by, what can be learnt from the long-neglected 'other' logical empiricism (especially since the latter paid little attention to the economics of science except via the vaguaries of historical materialism). Nevertheless, one desideratum is clear and one trick of the trade notable.

Neurath would have wanted political philosophy of science to object to the violations of the Mertonian norms of science that the present globalized privatization regime entails, especially that of the norm of scientific 'communism' marking out the scientific commons. (Significantly, already in his day, Merton noted encroachments by the patent system.)[28] Having long been interested in the history and sociology of science, Neurath preferred to speak of 'the republic of scholars' rather than 'the scientific community', indicating thereby the need for a public constitution of scientific rationality in preference to reliance on intuitive communitarian norms.[29] Notorious for his unrepentant stance in the socialist calculation debate with Ludwig von Mises—he advocated what he called the 'total socialisation' of a nation's economy—Neurath thus can be counted on in support and defense of norms such as scientific communism. Whether he would have adopted a position such as that associated with J. D. Bernal, who proposed scientific planning to complement the economic planning by the vanguard party is not at all clear, however, given Neurath's dissent from Marxism–Leninism, but since Bernal kept his pronouncements rather unspecific Neurath may well have agreed in principle.[30]

[27] For a more detailed argument for this point see Uebel (2004a).

[28] For the scientific norm of communism and some of its vicissitudes, see Merton (1973 [1942]), pp. 273–275.

[29] On Neurath's scientific republicanism (which, to be sure, predated Merton's codification of the 'scientific ethos') see Uebel (1996).

[30] For Neurath's socialisation theory, see his (1973a [1919]) and several selections in (2004). For Bernal's ideas, see his Bernal's (1949) which, however, remains unspecific about the nature of planning science.

Yet on at least one other central and on-going issue the left Vienna Circle has one more surprise in store. Consider the probity of drawing a categorical distinction between fact and value. Facts and values cannot be sharply distinguished, it is often claimed, to think they could is one of the cardinal mistakes of positivism. We must add that this mistake is one that appears to have been shared by both versions of logical empiricism under consideration. However, the left Vienna Circle thought of the fact–value distinction in a different way from orthodox logical empiricism—and this matters for how to respond to this long-standing anti-positivist complaint.

Carnap spoke to this challenge when he clarified the status of the fact–value distinction late in his career (but in terms that suggest that this was no new insight).

> Let us assume that a psychological and linguistic investigation arrives at the following result ... that the majority [of English speaking people] does not use any sentence of the English language as a pure optative ... Would I, in view of these scientific results, abandon the thesis of pure optatives? I think I would not; just as I would not abandon the thesis of the analytic character of the theorems of logic and arithmetic if a psychological investigation were to reveal that the majority of people interpret these theorems as containing certain factual components. *A philosophical thesis on logic or language, in contrast to a psychological or linguistic thesis, is not intended to assert anything about the speaking or thinking habits of the majority of people, but rather something about possible kinds of meanings and the relation between these meanings*. In other words, a philosophical thesis does not talk about the haphazard features of natural languages, but about meaning relations, which can best be represented with the help of a constructed language .... A discussion about a thesis of this kind seems to me much more in accord with the spirit of analytic philosophy than a discussion about a thesis interpreted as a psychological empirical assertion. At any rate, my position with respect to the present problem complex may best be characterized, first, by the assertion of the thesis of pure optatives as just interpreted, and second, by the proposal to construct a language with pure optatives and to use it as a basis for the philosophical discussion of value problems (Carnap, 1963b, p. 1003; italics added)

Just like the distinction analytic–synthetic, so the distinction factual–evaluative was not put forward as descriptive of ordinary natural language use, but as a tool of analysis for particularly perplexing (formerly philosophical) questions. The analytic–synthetic distinction was to allow for the discussion of the differential contribution made to the success or otherwise of a scientific theory by its logico-linguistic conventions and definitional frameworks on the one hand and its empiricial hypotheses on the other. Likewise the fact–value distinction was to allow for the discussion of the differential contribution made to normative discourse by factual considerations and by subjective valuations. Far from naively assuming the existence of a reductively constituted, pre-given realm of objective fact that is sharply separated from merely subjective wishings and emotive exhortations, Carnap suggested that reflections about practical problems, where facts and valuations are interconnected in most complex ways, are helped by distinguishing, as sharply as we can, the factual and the purely evaluative component. (By representing their entailment relations and so on separably from each other we could gain greater clarity about options for action than was otherwise possible.)

Rendering of the fact–value distinction as a proposal for philosophical language use (just like the analytic–synthetic distinction) has momentous consequences. Being part and parcel of the postulation of a 'cognitive meaning criterion' as the yardstick of empiricst discourse, it underscores once more that the theory of meaning does not fulfill a foundational role any longer, but rather an explicatory one. Adopting an empiricist meaning criterion is to accept the proposal to speak and think as an empiricst. It does not ground linguistic meaning in something else even more primordial, as verificationism is often understood. Rather, once formalist pretensions are shed and it is understood as example- or situation-based, adopting an empiricist meaning criterion presupposes a pre-analytical or pre-theoretical grasp of the significance of terms and statements and systematises this *Vorverstehen* under an epistemological perspective. For Reichenbach, by contrast, the fact–value distinction—just like the distinction between analytic and synthetic statements—was foundational: both operated against a fixed notion of fact. For Carnap, however, only the specification of a logico-linguistic framework determines, by way of the distinction between what does and what does not follow from the rules of a particular language alone, what counts as a fact.[31] For Carnap and the left Vienna Circle, the notion of fact is language-relative and not absolute.

That the fact–value distinction was not naively assumed by the left Vienna Circle is not to say, of course, that no other problems remain for their political philosophy of science. Nor can we yet fill the lacuna of arguments concerning the economics of science which were becoming topical already in the later interwar years. But it would appear that the left Vienna Circle at least possessed a framework which allowed them to discuss these matters as part of scientific meta-theory. Their political philosophy of science did not exclude them in principle. A small result, but one to build upon.

Acknowledgements

Without ascribing agreement, I wish to thank Robert S. Cohen, Don Howard, John McCumber, Elisabeth Nemeth, George Reisch, Alan Richardson and Friedrich Stadler for stimulating discussions, some of them going back quite a few years, of the matters touched upon here. I thank Philip Mirowski for providing the occasion and yet more discussion and Alan Richardson and Brad Wray for comments on a previous draft.

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[31] This has been established by detailed argument in Ricketts (1994).

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